Promotion of Andean Crops for Rural Development in Ecuador

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For centuries, farmers living in the foothills of the Cotacachi Volcano have made their living by cultivating small plots of land with a diverse assortment of native crops, many of which are little-known outside the Andes. The Cotacachi communities are located within one of the world's primary centers of crop domestication. Crops grown here include numerous local maize varieties; Andean roots and tubers such as oca, mashua, melloco, and arracacha; pseudo-cereals such as quinoa and amaranth; tropical fruits such as tree tomatoes, ground cherries, passion fruits, highland papayas and giant Andean blackberries; native grain legumes including lupines, lima beans, common beans and scarlet runner beans; highland squashes such as the fig-leafed gourd and the slipper gourd; and several varieties of hot peppers. Local farmers also maintain the ancestral knowledge about the special properties and uses of these crops. After satisfying their family's own needs, farmers take any surplus produce to local markets, where the prices are often so low they don't even cover the transportation costs. The low status often associated with native foods in urban markets, and environmental changes in recent decades have led to increasing abandonment of these diverse crops, resulting in the overall erosion of agricultural biodiversity.

In Ecuador, *in situ* conservation of native crops on-farm is being encouraged and complemented by efforts of the National Agricultural Research Institute (INIAP), which maintains the country's *ex situ* germplasm collections. It is important to maintain both of these conservation approaches, to ensure the availability of these unique genetic resources to both farmers and scientists so that they can confront the changing needs of Ecuadorian agriculture.

Beginning in late 2002, a group of national and international organizations joined forces with the farming communities of Cotacachi, represented through the Union of Indigenous and Peasant Communities (UNORCAC), to promote the conservation and increased use of local agrobiodiversity through innovative approaches that add value to native crops and increase local incomes. By creating new markets for diversity-based products, including agro-tourism, and by revitalizing indigenous knowledge and traditions associated with local agrobiodiversity, the ethnic, cultural and social value of native crops is recognized and reinforced.

The project includes four interrelated components: Complementary Conservation of Native Crops; Artisanal Food Products; Agrobiodiversity Education; and Agro-tourism.

Complementary Conservation of Native Crops

Over 300 farm families were surveyed to determine the amount and distribution of crop diversity on-farm, as well as to understand the human and natural factors that contribute

to the maintenance of this diversity. Seeds of native varieties that had become scarce or lost in the field, but were conserved in INIAP's germplasm bank, were restored to participating communities. A communal plot of land for seed reproduction was established in Cotacachi and dozens of traditional crop varieties have been restored in this way. Meanwhile, samples of the current local varieties were collected and deposited in the national germplasm bank, where they are characterized, evaluated and conserved *ex situ* under long-term storage conditions.

Local farmers were also involved in the evaluation of the varieties collected in the region and they identified promising materials that were then multiplied and distributed to other farmers interested in diversifying and enriching their production. Seed fairs were organized where farmers displayed and exchanged native varieties. Farmers that maintain the greatest local diversity, as identified through the agrobiodiversity survey, were specifically encouraged to participate in and help promote these events. The seed fairs continue to attract hundreds of growers interested in sharing and recovering ancestral seeds.

Artisanal Food Products

The project emphasized the consumption and promotion of native foods, through nutrition workshops, recipe exchanges, and by adding value to local crops through artisanal processing. In training workshops, families from the community, nutritionists and agronomists shared information about the value of native crops, such as their productive, nutritional and culinary properties, and their use in the preparation of artisanal food products for sale.

A food processing plant was installed to produce and package artisanal foods including: Andean Blackberry Marmalade (*Rubus glaucus*), Squash Seed Snacks (*Cucurbita ficifolia*), Spicy Pepper Pastes (*Capsicum* spp.) and Dried Ground Cherries (*Physalis peruviana*). The attractive, high-quality food products are marketed to the large numbers of tourists visiting the Cotacachi area, nearby Otavalo, and the capital city of Quito. The marketing strategy adds value to the products by telling the "story" of the native crops and the indigenous farmers who produce them. Farmers are paid a premium price for high quality produce, and any profits from the business are reinvested into the community.

Agrobiodiversity Education

In collaboration with a group of teachers from the rural bilingual (Kichwa & Spanish) schools, a curriculum was developed to help children in the native communities understand and appreciate their ancestral crops. The curriculum is being published as a "Teacher's Guide to Agrobiodiversity", which has an intercultural focus. Topics covered in the guide include the agricultural history of the people and the land, and basic concepts of plant biology, evolution and domestication. The Guide is meant as a tool for teachers to provide relevant information about agrobiodiversity to their students and engage them in activities that highlight native crop diversity. The participatory development of the

Teacher's Guide has energized the teachers who have formed an association that aims at spreading their experience beyond Cotacachi.

Agro-tourism

At present, fifteen rural tourist lodges (*albergues*) are owned and operated by individual families in the Cotacachi communities. Overnight stays at the lodges and daytime tours with native guides are coordinated by the community-based tourism agency, Runa Tupari Native Travel (www.runatupari.com). The visitors to the lodges partake of meals with their indigenous host family. The food for the meals comes from the host families' home gardens, which were enriched by the project with as many as 100 varieties of Andean crops. Agro-tourism is providing an important source of additional income for farm families. The gardens, in turn, diversify the families' diets, reduce their need to purchase processed foods, and contribute to the revaluing of the role of native crops in Andean agriculture.

The *Agro-Culinary Guide to Cotacachi* is a small book written to help inform visitors about the native crops of the region, the importance of agrobiodiversity, and the festivals that celebrate the agricultural cycle, central to the lives of these communities.

All of these activities have, in turn, inspired neighboring families to seek assistance for enriching their own home gardens with native crops. UNORCAC has responded to these requests by refocusing the objectives of another project that was originally designed to promote introduced crops.

Conclusion

The innovative, multisectorial approach of the project successfully reconciles the twin goals of agrobiodiversity conservation and rural development. The project contributes to a model of rural development that is firmly rooted in local realities and expectations, and is harmonious with UNORCAC's motto of "Development with Identity". The communities of Cotacachi now realize the potential of their native agrobiodiversity as a source of increased well-being and social empowerment. Due in part to its participation in this project, UNORCAC was one of 25 community organizations selected to receive UNDP's prestigious Equator Prize 2008, and was given a further special recognition as the initiative that best exemplifies the conservation of agricultural biodiversity.

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